

THE ELECTRIC SYSTEM

— IN USE ON —

THE • SHENANDOAH • ROADS!

— IS THE —

THOMSON-HOUSTON,

No. 509 Arch Street,

Philadelphia, Pa.

Electric Sparks.

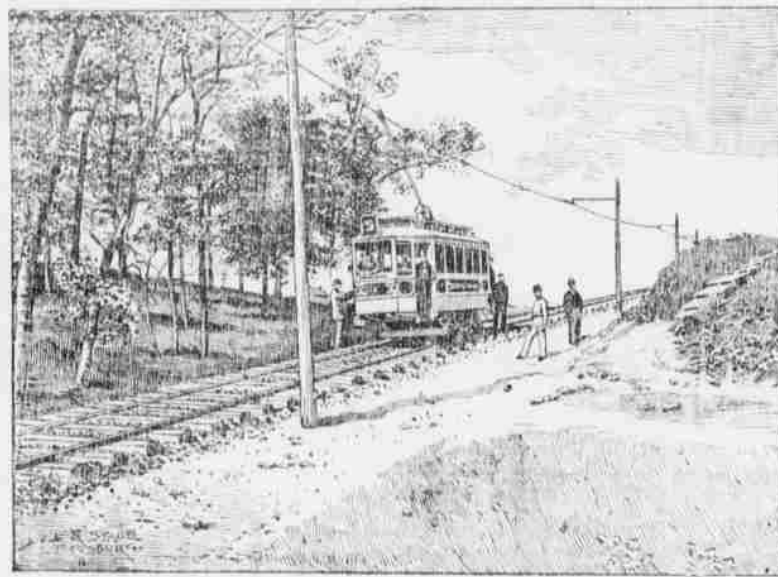
Interesting Items in Reference to the Construction of Electric Railways.



THE complaint repeatedly heard made of late that many patents obtained by railway men for devices intended to be applied to railway operation, are close imitations of devices for the same purpose previously invented and covered by letters patent. Those who make these charges allege that when a new and useful invention is applied to railway work, and begins to display the merit that brings popularity, a crowd of invention imitators at once proceed to see how they can design something of the same kind, something that will perform the same functions, and yet escape being an infringement of the article imitated. If they succeed in obtaining a patent, they conclude that their efforts have been successful. There is good reason for believing that many of the men who devote their time to imitating patents would be otherwise employed if they properly realized the nature of the moral principles they were violating.

The laws of the United States gives any person who is the original inventor or discoverer of any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement, thereof the right to letters patent which make the machine, design or composition invented as much the property of the inventor as any other article which he may inherit or purchase. Many persons who would scorn the idea of possessing themselves of the ordinary property of any man without giving due compensation, do not hesitate to scheme means of taking away the property of patentees, by using the ideas of the original inventor to deprive him of his rights. It is a mistake to suppose that the granting of a patent is good evidence that an invention is original, and that it does not infringe on the rights of a previous inventor. The Patent Office authorities will not issue a patent on a device which they consider an infringement of a patent previously issued, but they often do so, and they are not the final judges of the validity of a patent. That lies with the courts, and the courts have repeatedly displayed no mercy for those who have obtained patents which were imitations of previous inventions.

JUST at this juncture, when so much attention is riveted upon the subject of electric railways, a pain word or two from one that is in circulation all the time, and has many opportunities of observation, may not be out of place if it help toward needed changes and improvements. The exploiters of electrical novelties and inventions must always be ready to justify and increase the confidence of the public by hastening to remove all possible sources of annoyance and inconvenience. Let us take, for instance, the subject of overhead trolley wires, which are often so strenuously objected to, yet which have proved such a boon by the increase of traveling facilities they have brought, with concurrent advantages. These wires are generally strongly set up, but owing to their peculiar construction they often act as a catch net for the vagrant wires of other electrical services. The current of a street railway circuit, while not dangerous to life is of necessity not very pleasant, and a "dead" wire dropping across the trolley wire at once becomes very much alive. In this condition it dangles in the air, or trails along the ground to all appearances a harmless relic, until some generous person volunteers to remove it, and then there is usually trouble. Nor does it help



The Electric En Route to Locust Dale.

matters to have one excited citizen after another receive severe shocks in their efforts to clear away the obstruction, until after many hours of delay the "expert" comes along arrayed in all the glory of his rubber gloves. Then he fondles the wire as though it were, indeed, dead, seeking at the same time to make the economy very awful and impressive. The newspapers will come out next day in inch full-face head lines announcing "The Deadly Wire Again," "Voits on the Rampage," etc., until the people are led to believe that the wires which have proved such a blessing are disguised messengers of death, and that travel by means of electric railways is bald-headed suicide.

It is of little use, however, to complain of the exaggeration and sensationalism of the papers. The source of annoyance does exist, and it is for us to remedy it if possible. The question of how this can best be accomplished is answered by the necessities of the case, namely, the removal of the offending wire. To do this with the bare hands is not to be considered, for it is well known that a person cannot stand a railway shock for any length of time. He could, however, if his hands were protected by the best known insulation for the purpose rubber gloves. Each car on a well equipped and well operated road should be supplied with these simple but very valuable adjuncts. Their use will save annoyance and heavy electric shocks, and at the same time save the company a great deal of wasted time and adverse criticism. A pair of insulated pliers and nippers should also be considered as a part of the car's equipment. The gloves especially should be kept in sight of the passengers, in the same manner that wrecking tools are carried on our railway trains, and that fire extinguishers are kept at convenient points in office buildings. Nobody avoids the trains or buildings on their account. A small placard indicating that these appliances are to be used in the handling of an electric wire should be placed in full view. If seldom, if ever, happens that there is not among a carload of passengers one or more who knew enough of electricity to safely remove an obstruction of the kind I named if

they have the right protection. Besides, the drivers and conductors are there.

This may seem a trivial matter when we consider how slight is the remedy required, but it is of as much consequence, viewed from the standpoint of the people whose servants we are and whom we wish to please. If an accident occurs to our lines, the pessimists, who look with disfavor on all steps of progress, open their veins of wrath among us; while the newspapers, glad of the opportunity of getting hold of a small incident that may be magnified a thousand times, and about which hangs an air of mystery, will energetically endeavor to make the most of the occasion.

In a word, I would suggest the supplying to each car operated by the electric current a pair of rubber gloves, insulated pliers and nippers, and suitable inscriptions near by to indicate their use.—Engineer.

A COMPARISON between steam and street railroad investments shows much favor for the city, or intra-mural passenger companies. Trunk line securities do not enhance in value so rapidly as city or suburban lines, and the enormous operating expenses again depreciate to greater or less extent the growing value of steam railroad securities. In most instances, too, aggressive competition, together with the patronage of officials (which must always be taken care of), embarrasses companies, not a little, and in other ways dividends are curtailed and the growth of stock values dwarfed. Take city passenger lines as a general rule. Operating expenses, compared with receipts, are very creditable and at a minimum. Contiguous lines, although for the greater distance parallel, generally tap exclusive territories, and the baleful effects of a ruinous competition do not obtain. Again, the rapid growth of towns, cities and the growing disposition of our people to live on the borders of municipal districts, put life into the stocks and give them rapid growth. Lastly, too, there is not that parasitic clientele to take care of, for street roads, being

mainly local, can assume a more aggressive independence.

A perusal of the investment problem, prepared by Glendinning & Co., will give some tangible explanation of what we say:

It is interesting to note, from our schedule of street railway traffic in Philadelphia during the past two decades, the marvellous growth that has taken place from year to year in the number of passengers carried by the different street railway companies of this city.

We say marvellous because this increase is occurring year after year, almost imperceptibly by the uninterested citizen, and it is only when the figures for some recent year are compared with those of a few years previous that the increase is discerned.

The constantly growing volume is quickly observed by only a glance at the schedule, but it is when the increase is placed upon a basis of percentages that it strikes one with the full force of its importance, and shows that whilst the increase during the first decade (1870-1880) was great, the increase during the decade just closed (1880-1890) has been greater.

The Citizens' Company (Tenth and Eleventh Streets) during the first decade increased 37 per cent. The second decade, however, showed a further increase of only 32 per cent. The increase from 1870 to 1890 was 71 per cent.

The Frankford and Southwalk (Fifth and Sixth Streets) increased during the first decade 96 per cent., and during the second decade showed a further increase of 96 per cent. Total increase, 227 per cent.

The Westmonte increased 25 per cent. during the first decade and added 33 per cent. more during the second. Total increase, 70 per cent.

The Ridge Avenue increased 30 per cent. and 47 per cent. additional respectively. Total increase, 104 per cent.

The Second and Third Streets increased 17 per cent. and 25 per cent. Total increase, 46 per cent.

The lines comprised in the Philadelphia Traction system (operating the only cable line in the city) show a greater increase for the twenty years than any other in the city, the increase aggregating 250 per cent.

A radical change in the motive power of many street railways during the past few years and enlargement of capitalization in consequence thereof has been the cause of bringing the shares and bonds of those companies more prominently to the attention of investors.

The North Chicago Street Railroad Company's annual report just issued shows net earnings for 1890 increased \$341,656, the net profits being 10.3 per cent. on the capital stock of \$5,000,000.

On North Chicago stock there has since been an advance of 37 1/2 per share, and on West Chicago a profit of \$127 per share.

By the percentage analysis already shown, indicating the extraordinary increase in street railway traffic, it can be readily observed that there is not another form of investment that can be compared to the securities of these companies.

Not a few instances occur to us where a horse road, which could not pay operating expenses, was made to pay large dividends by merely using an electric equipment. Take the Lancaster City Street Railway Co., which at its last meeting, submitted a report for 1890, which showed a passenger traffic of 560,000 persons, as compared with 247,000 the previous year, when they used horse power.

The Pleasant Valley electric lines, at Pittsburg, used to run one horse bodied cars in 1870, when they only carried 946,721 passengers, earning about \$15,000 clear of expenses. In 1880 ten years had only increased this to 1,058,000 passengers, yet the little Pleasant Valley had audacity to introduce electricity. Last year it carried 4,582,900 passengers the receipts were \$251,379, and the expense only \$153,644.

Cable and electric railway stocks and bonds form one of the safest and most desirable investments of the day.

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